Human papillomavirus quantification in urine and cervical samples by using the Mx4000 and LightCycler general real-time PCR systems

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Résumé en anglais	During the last decade, growing efforts have focused on human papillomavirus (HPV) detection using liquid hybridization, conventional PCR, and real-time PCR-based methods to increase the overall proportion of patients participating in cervical cancer screening procedures. We proposed a new general HPV DNA real-time PCR on the Mx4000 (Stratagene) and LightCycler (Roche Diagnostics) systems usable for both cervical scrape specimens and urine samples. A linear range was obtained from 5 DNA copies to 8 log(10) DNA copies/ml, and intra- and interassay variations were between 1.8 and 4%. Cervical carcinoma and HPV DNA screening was performed in 333 individual women referred for gynecological examination at the university hospitals of Angers and Brest and enrolled in the PapU study. Among cervical specimens (n = 333), 45% were positive for HPV DNA, with a mean viral load at 5.00 log/ml (+/- 1.73). Among urine samples (n = 177), 37% were positive with a significant 50-fold-lower mean viral load (3.77 +/- 1.32 log/ml; P < 0.0001). Kappa agreement for HPV DNA between cervical and urine specimens was excellent (93%). Thus, we developed a highly sensitive and quantitative general HPV DNA real-time PCR method that allows mass screening of patients with HPV infection. The ongoing longitudinal and prospective multicenter PapU study should give us the opportunity to validate this method adapted to HPV DNA screening in urine samples in a larger population.
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